DEPARTMENT OF DEFENSE (DOD)

Guidance on Minimizing Total Maximum Daily Load (TMDL) Related Impacts to DoD: Understanding and Participating in the TMDL Development Process



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PURPOSE

The purpose of this document is to assist DoD installations in minimizing impacts from the establishment of Total Maximum Daily Loads (TMDLs), including associated compliance costs. Specifically, this document provides information on the TMDL process and the operational effects of TMDLs. It then identifies opportunities for DoD personnel participation in the TMDL development process to ensure that regulators will accurately analyze an installation's pollutant contribution(s), if any, to an impaired waterbody. DoD personnel who may benefit from this document include command and installation water program managers.

This document answers the following frequently asked questions:

- A. What is a TMDL and what are the current regulatory requirements?
- B. Why should DoD installations care about TMDLs?
- C. How can an installation determine if it may be impacted by a TMDL?
- D. What can DoD personnel do to address potential TMDL impacts?

This document was prepared by the DoD Clean Water Act Services Steering Committee (CWASSC), which is comprised of representatives from the Military Services and other DoD Components.

For more information on the CWASSC, visit their website at:

• www.denix.osd.mil/denix/DOD/Working/CWASSC/cwassc.html.¹

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¹ This website can be accessed through the Internet by pasting the link into any browser. A DENIX password is required to access these documents.

SECTION A: What Is a TMDL and What Are the Current Regulatory Requirements?

What Is a TMDL?

A TMDL specifies the maximum amount of a particular pollutant, which a waterbody can receive without exceeding water quality standards. The TMDL program is one of the many regulatory tools Congress authorized in the Clean Water Act (CWA) to help achieve and maintain water quality. Specifically, under Section 303(d) of the CWA, States² are required to list all waterbodies not meeting water quality standards. Such waterbodies are considered impaired. States base their 303(d) listings on instream testing and assessments of waterbodies within their boundaries. If effluent limitations required under the CWA for Publicly Owned Treatment Works (POTWs) and other point sources are not stringent enough to achieve the water quality standard applicable to an impaired waterbody, the State with jurisdiction over the waterbody must develop a schedule for establishing TMDLs for each pollutant identified as contributing to the impairment.

A key component of the TMDL is the allocation of pollutant loadings among point and nonpoint source discharges to the waterbody. This allocation is usually implemented through an National Pollutant Discharge Elimination System (NPDES) permit for point source discharges to waters of the United States, which is mandatory, and through State and Federal nonpoint source programs, which, depending on the particular State, may be either mandatory or voluntary.

According to Environmental Protection Agency (EPA) guidelines, allocations are used to distribute pollutant loads among the different sources contributing a particular pollutant to a waterbody such that the sum of the particular pollutant loads does not exceed the maximum allowable load (i.e., TMDL). Allocations are composed of both *Wasteload Allocations* (WLAs) and *Load Allocations* (LAs). The WLA portion of the TMDL is assigned to existing and future point sources, and the LA is assigned to existing and future nonpoint sources. The TMDL should also account for uncertainty regarding the relationships between load allocations and water quality, by incorporating a Margin of Safety (MOS). The MOS may either be a reserved portion of the TMDL or implicitly provided by using conservative assumptions in the TMDL development process. Therefore, a TMDL can be represented as:

$TMDL = \sum WLA + \sum LA + MOS$

These allocations should be technically feasible and consistent with applicable Federal, State, and local CWA regulatory programs (i.e., institutional constraints). In some cases, allocation options are constrained by technical feasibility and sources must implement all possible management practices and available technologies to satisfy TMDLs or other regulatory limits. In other cases, where limits are less constraining, EPA encourages the use of allocations that are based on competing measures of desirability, such as cost-effectiveness, equity, and fairness. Other factors to consider when making allocation decisions include relative source contributions, ability of small entities to pay, and prior load reductions.

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² Rather than repeat the term "states, territories, and authorized tribes" throughout this document, the term "States" is used.

What Are the Current Regulatory Requirements?

EPA first issued TMDL regulations in 1985 (50 FR 1779, January 11, 1985). These regulations have been revised twice, initially in 1992 (57 FR 33049, July 24, 1992) and again in 2000 (65 FR 43586, July 13, 2000). The 2000 regulations provided more detailed guidance on the TMDL development process. However, EPA withdrew these regulations, which were never enforced, in 2003 (68 FR 13607, March 19, 2003).

Currently, the 1992 regulations govern the TMDL program. These regulations require State 303(d) lists to include impaired or threatened waterbodies and the TMDL needed for each pollutant causing the impairment. The waterbodies remain listed until the applicable water quality standards are met. State 303(d) lists must be revised and re-submitted every two years.

Even though TMDLs are typically developed for individual waterbodies, impaired waterbodies are often clustered on a watershed basis and EPA has encouraged States to develop TMDLs on a watershed basis. EPA believes that integrating TMDLs into more comprehensive watershed planning can help develop and create the opportunity for innovations such as water quality trading and watershed-based permitting. This includes working with partners to develop and execute implementation plans for watersheds in which TMDLs have been completed.³ States may implement a TMDL for all dischargers to any waterbody within the watershed.

Although States have the initial burden to develop TMDLs, citizens groups may sue EPA to ensure a TMDL is developed if the State fails to do so. Many such lawsuits have been filed against EPA to advance the TMDL process. Time frames established through legal actions for developing TMDLs are typically more aggressive than the 8-13 years recommended by EPA in its 1997 Interpretative Guidance for the TMDL Program. While most States have begun to develop TMDLs, only a small percentage of the more than 40,000 required TMDLs have been completed nationwide. Additionally, as States update their 303(d) lists every two years, more impaired waterbodies will be identified and more TMDLs will be forthcoming.

Consequently, DoD installations should stay abreast of TMDL issues with relevant Federal, State, and local regulations, as well as court orders. More information on the current status of EPA and State TMDL regulations can be found at:

www.denix.osd.mil/denix/DoD/Working/TMDL/tmdl.html.⁴

³ EPA's National Water Program Guidance for FY 2005 and FY 2006, Section IV: Sub-Objective Implementation Plans to Improve Water Quality on a Watershed Basis, March 4, 2004.

⁴ This website can be accessed through the Internet by pasting the link into any browser. A DENIX password is required to access these documents.

SECTION B: Why Should DoD Installations Care About TMDLs?

Many DoD installations are located near surface waters that are listed as impaired on State 303(d) lists. DoD point and nonpoint source discharges to such waterbodies are subject to TMDL discharge allocations. DoD installations with NPDES permits for wastewater discharges (i.e., domestic and industrial wastewater treatment plants) and storm water discharges under the Storm Water Phase I and II requirements (i.e., industrial operations, construction activities, and installations located in urbanized areas) may be affected by TMDL. In addition, DoD nonpoint source discharges including storm water runoff from installations in non-urban areas, run off from training areas, Installation Restoration Program (IRP) response sites, forest management areas, and agricultural areas have the potential to be affected by TMDLs.

Direct Impact to Installation Water Programs

DoD point source discharges identified as contributors of pollutants causing waterbody impairments will likely have their discharge permits changed to incorporate new or more stringent limits for TMDL pollutants. Depending on the severity of the TMDL, treatment systems or devices, Best Management Practices (BMPs), and Pollution Prevention (P2) practices may be required to meet new permit effluent limits. DoD nonpoint source dischargers may need to institute BMPs or P2 practices to reduce discharge loadings. In addition, there may also be restrictions on new or expanded discharges, including both point and nonpoint source discharges. These restrictions may impact the ability of DoD to conduct various types of operations or activities at the installation.

Indirect Impact to Installation Water Programs

There may also be indirect impacts from TMDLs. For smaller installations in urban areas, indirect impacts may include new or increased storm water utility fees for discharges entering municipal storm water systems.⁵ Localities are expected to use these fees to expand storm water treatment capacity, fund public awareness initiatives, or fund enhancement and restoration projects to meet TMDL requirements. DoD installations discharging wastewater to a Publicly Owned Treatment Works (POTW) may incur higher user rates if the POTW is required to upgrade treatment capability to meet more stringent NPDES permit limits. Other impacts on discharges to POTWs may include more stringent industrial discharge pretreatment effluent limits and/or permit conditions and greater regulatory oversight of them.

Impact to Other Environmental Programs

Other environmental media and regulatory programs may affect and/or be affected by TMDL implementation. For example, air pollutants, such as mercury and nitrogen, have already been identified as the source of impairment for numerous TMDL listings. Some States have also identified sediment contamination from past discharges and hazardous substance releases as sources of impairment to 303(d) listed waterbodies. In such cases, consultation with the installation legal counsel will be important in determining applicable regulatory requirements. States may also use a variety of authorities, beyond those in the CWA, to address such problems, which will require installation water program managers to coordinate with the managers of the IRP or other programs.

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⁵ All storm water fees should be reviewed by the installation legal counsel to ensure that they are covered under the waiver of sovereign immunity in CWA section 313. Sometimes, such fees are really taxes, which the Federal government does not pay.

SECTION C: How Can an Installation Determine if It May Be Impacted by a TMDL?

Questions to consider in determining whether a DoD installation is likely to be impacted by a TMDL, include the following:

- Is the installation directly discharging a pollutant identified as causing impairment to a waterbody listed on the State's 303(d) list?
- Is the installation discharging a pollutant identified as causing impairment to a tributary of an impaired waterbody?
- Does the State's approach to the TMDL focus on the types of point and nonpoint source discharges that occur from the installation?
- What is the "profile" of the installation within the watershed? (i.e., Is the installation a major contributor, or perceived as such, discharging to and/or located near an impaired waterbody?)
- Is the time frame for developing the TMDL aggressive? (i.e., Some States have very aggressive TMDL schedules.)
- Is there a significant degree of public interest in the impaired waterbody?

(Note: So far, the majority of TMDLs being developed typically address sedimentation, nutrients, and pathogens loading. Some States, such as Tennessee and California, require a review of Storm Water Pollution Prevention Plans (SWPPPs) for construction activities adjacent to impaired waters. States may also impose special conditions or new monitoring requirements for NPDES permit renewals.)

Individual Military Services may have already initiated efforts to identify the installations that are potentially impacted by a TMDL. Therefore, an installation should first inquire within its own Service regarding available resources.

Watershed and TMDL websites⁶ on the DoD Defense Environmental Network Information Exchange (DENIX) website provide a good reference to these resources. More information can be found at:

- www.denix.osd.mil/denix/DoD/Working/TMDL/tmdl.html;
- www.denix.osd.mil/denix/DOD/Library/Water/CWA/SubjectAreas/subjects.html;
- www.denix.osd.mil/denix/DOD/Library/Water/CWA/SubjectAreas/Watershed/dod_watershed.pdf; and
- www.denix.osd.mil/denix/DOD/Working/CWASSC/InfoPapers/dodwatershedinfo20040 204.pdf.

⁶ These websites can be accessed through the Internet by pasting the link into any browser. A DENIX password is required to access these documents.

SECTION D: What Can DoD Personnel Do to Address Potential TMDL Impacts?

Once it is determined that a DoD installation is potentially impacted by a TMDL, the installation should:

- Determine whether the installation needs to participate in the TMDL development process (See Figure D.1. and Table D.1). Participation may minimize the regulatory requirements and compliance costs by ensuring that any future regulatory requirements associated with a TMDL are fair and reasonable. Such participation may involve:
 - Attending public meetings and commenting on proposed information including proposed State regulations;
 - Evaluating the technical data and methodology used during the listing and development process; and
 - O Sharing information with regulators to provide a better understanding of the waterbody impairment, the pollutants contributing to the impairment, and the impact of potential load reduction allocations to the installation.
- Assess the installation's contribution(s) to the impaired waterbody by analyzing readily available historical and current water quality data. This assessment may require sharing of data and resources with other dischargers to the waterbody to fill in data gaps.
- Develop a plan of action and milestones to ensure compliance with anticipated regulatory
 requirements associated with the TMDL are achieved in an efficient and cost effective
 manner. The plan should include actions to reduce loadings to the impaired waterbody and
 recommendations on how to address permit effluent limits and/or any other requirements
 resulting from the TMDL with the State.

Figure D.1 and Table D.1 provide additional information about the State TMDL development process and recommended actions for DoD participation throughout the process.

1: 303(d) Listing Process 1A: Develop / refine listing method Disapproved 1G: 1B: 1C: Categorize the list Obtain **Identify and list** 1D: Rank the categories **EPA** impaired & (high, medium, low) **Approval** threatened **1E:** Develop TMDL schedule of 303(d) waters 1F: Submit 303(d) list list If approved, start TMDL development as scheduled 3: Target analysis 2: 4: Source assessment **Identify the** 5: Source and target linkage Update next cause or **6:** Load allocation 303(d) list source of 7: Develop implementation & monitoring plan impairment 8: Public participation in review of TMDL 10: **TMDL** Execute Approved Disapproved implementation **Submittal** & monitoring to EPA plan

Figure D.1. Steps In a Typical State TMDL Process

Table D.1. Steps In a Typical State TMDL Process and Recommended Installation Actions to Avoid Unwarranted Requirements

Note: DoD installations should always document in detail the actions or measures taken to determine their actual contributions, if any, to an impaired waterbody in order to ensure fair and reasonable load allocations.

STEP 1: 303(d) listing process

State action:

- A. <u>Develop/Refine Listing Methodology.</u>
 - Specify the factors used to consider and evaluate the following types of data and information when making listing decisions: Physical/chemical; biological; aquatic and riparian habitat; waterbody impairment; and drinking water susceptibility analyses.
 - Identify the types of information considered to be "existing and readily available" and explain how the following are considered in making listing and priority ranking decisions: data quality and age; degree of confidence in the information used to determine whether waterbodies are impaired or threatened; number and degree of exceedances of numeric or narrative criteria; and designated uses utilized to determine whether waterbodies are impaired or threatened.
 - Describe the selection factors used to include waterbodies on the list.
 - Detail the process for resolving disagreements with other jurisdictions involving waterbodies that cross State lines or authorized Tribal or international boundaries.
 - Describe the method and factors used to assign a priority ranking to waterbodies listed.
 - Be available for public comment.
 - Submit listing methodology to EPA for review and comment, along with a summary of all comments received and the State's response.
- B. <u>Identify and List Impaired and Threatened Waters.</u> The list must include all waterbodies that, based on all existing and readily available data and information, are impaired or threatened by individual pollutants, multiple pollutants, or pollution from any source regardless of whether the waterbodies are impaired or threatened by: a pollutant which is unknown at the time of the listing; atmospheric deposition; point sources; nonpoint sources; or a combination of point and nonpoint sources.
- C. <u>Categorize the List.</u> Separate the listing into various categories and rankings, which could be based on types of pollutant causing impairment, human risk factors, and current remediation actions (e.g., watershed approach, technology already in place).
- D. <u>Rank the Categories.</u> Develop priority ranking of category requiring TMDL. Priority ranking may include:
 - Assignment of a high, medium, or low priority score to each waterbody and pollutant combination and may take into account the severity of the impairment and the designated uses of the waterbody. (Note: An explanation must be included as to how the severity of the impairment and the designated use of the waterbody were considered in assigning each priority ranking.)
 - Assignment of a high priority score to waterbodies used as public drinking water supplies and to
 waterbodies in which species listed as endangered or threatened under Section 4 of the Endangered
 Species Act are present. Also, the presence of sensitive aquatic species and secondary factors such as
 the historical, cultural, economic, and aesthetic uses of the waterbody may be considered.
 - Assignment of a medium or low priority score to waterbodies, which have endangered or threatened species present and have an approved Habitat Conservation Plan or other specific, enforceable mechanism developed in accordance with the Endangered Species Act. The approved plan or other mechanism must be specific to the pollutant and the waterbody of concern and demonstrates that

- water quality standards will be attained or maintained.
- Assignment of a high, medium, or low priority score based on the consideration of other factors such
 as efficiencies gained by developing the recreational, economic, and aesthetic importance of particular
 waterbodies; TMDL complexity; the degree of public interest; and State, Tribal, Territorial or Federal
 policies and priorities. (Note: Each additional factor must be identified and an explanation of how it
 was used to assign priority rankings must be included.)
- E. Develop TMDL Schedule. A schedule for completing TMDLs for all waterbodies is developed.
- F. Submit 303(d) List. The completed list of impaired waterbodies is submitted for EPA approval.
- G. <u>Obtain Approval of 303(d) List</u>. EPA must approve or disapprove a State's 303(d) list and notify the public via the *Federal Register*. If EPA disapproves all or portions of the list, it must identify and provide the public with a list of those waterbodies, pollutants, pollution combination, and priority rankings via the *Federal Register* for public comment.

Opportunities for DoD participation:

Influence the 303(d) list, priority ranking, schedule, and methodology process by:

- Reviewing and commenting on a State's: 303(d) listing methodologies; water quality assessment data (including any models used to predict water quality impacts); the 303(d) list; priority rankings; the schedule for TMDL development; and the draft TMDLs (including the accompanying implementation plan). States may allow at least 30 days for comment.
- Tracking EPA's approval or disapproval of 303(d) listings. EPA must approve or disapprove of each State listing, typically within 30 days after receipt. EPA must identify the waterbodies, pollutant and pollution combination and priority ranking for all disapproved portions, typically within 30 days, via the *Federal Register* to notify the public and request comments. The public will be given at least 30 days to review the 303(d) listings and provide comment.
- Using the priority rankings and schedules to determine the State's timeline for developing TMDLs for the waterbodies and then:
 - o Determine the urgency for participating in the TMDL development process; and
 - o Identify data gaps, projects, and funding needs to better define their installations' contribution to waterbody impairment.

STEP 2: Identify the Cause or Source of Impairment

State action:

Highlight and clarify the key factors and background information for a 303(d) listed waterbody and pollutant combination, and describe the nature of the impairment and context for the TMDL.

(Note: At this step, the approach for developing the TMDL is usually defined.)

Opportunities for DoD participation:

Review the State's approach/strategy for developing the TMDL to determine the TMDL priority and schedule. Many States tend to focus on a specific category of pollutant due to resource constraints. This could impact the priority of the installation's environmental compliance projects and funding resources. It could also impact involvement in stakeholder groups, partnering efforts in the TMDL process, and assessment/determination of States' data/information use and quality.

Ask questions in the TMDL development process. Did the State follow its listing methodology? Was the listing based on adequate data, good quality data, and/or recent data?

Provide the State with analytical data (e.g., water quality and sediment sampling results) to assist in TMDL development. If a State's data is insufficient, DoD personnel may ask whether the waterbody should have been listed under a different category instead of the one requiring a TMDL.

Determine whether the water quality standard is appropriate for the waterbody. Should the use designation be changed? Should site-specific water quality criteria be developed? (Note: Installations may want to become members of stakeholders responsible for TMDL load allocation.)

STEP 3: Target Analysis

State action:

Quantify the pollutant load that may be present in the waterbody to ensure attainment and maintenance of water quality standards. This would involve defining the relationship between designated uses, numeric measures of success, and pollutant loading. The goals are to: clarify whether the ultimate goal of the TMDL is to comply with a numeric water quality criterion; comply with an interpretation of a narrative water quality criterion or attain a desired condition that supports meeting a specified designated use; identify the waterbody's critical conditions; identify appropriate ways to measure (i.e., track) progress toward achieving stated goals; and tie the measures to pollutant loading. (Note: Part of the TMDL analysis is to determine the maximum allowable pollutant load and the reductions needed to achieve the allowable load.)

Opportunities for DoD participation:

Use the overall magnitude of load reductions to predict the amount of load reduction that could be required for the installation and the potential allocations that could be assigned to the various activities on it. This could help prioritize an installation's projects and funding resources.

Consider the following questions when assessing the State analysis: Is the State-identified target appropriate? Is there a WQS translator process for narrative criterion, or is there a site-specific standard? Should the waterbody use designation be changed? Are the models used to determine the loads appropriate?

During a State's Triennial Review, review the water quality standards. TMDLs ultimately begin with setting of standards. The more stringent the standards, the more likely a waterbody cannot meet them and will be listed as impaired. (Note: DoD is not responsible for QA/QC of State and/or EPA in developing TMDLs but it may be beneficial for DoD to review closely to prevent impacts from poorly developed TMDLs.)

STEP 4: Source Assessment

State action:

After step 3 is completed, identify, list and characterize source categories, source subcategories, or individual sources of the pollutant that are responsible for waterbody impairment. Under this stage, source types, locations, magnitude of loads, and transport mechanisms are determined.

Opportunity for DoD participation:

Independently assess whether all sources of the pollutant were considered and accounted for, the State's discharge loadings are accurate, and the discharge variables are accounted for.

STEP 5: Source and Target Linkage

State action:

Establish the relationship between the pollutant loads identified under Step 4 and the in-stream water quality target identified under Step 3.

Estimate the degree actual loads exceed allowable loads and degree of pollutant reduction needed to meet the water quality standards.

Opportunity for DoD participation:

Use this information to identify and evaluate affected discharges.

Verify that the relationship between DoD pollutant loads and the water quality target is valid.

Point out non-DoD sources that the State may have overlooked.

STEP 6: Load Allocation

State action:

Use technically feasible and reasonable criteria to allocate the allowable load among sources (point and nonpoint).

Opportunities for DoD participation:

Comment on allocation decision-making. This could include participation in stakeholder groups, attending public hearings, and meeting with regulators.

Provide data on the installation's contribution to pollutant loading.

Check whether models, if used, are appropriate and whether there is sufficient information to make an allocation decision. If available, review the States "Technically Feasible" criteria information.

Determine whether the reductions required are feasible, and if the nonpoint source reductions share the burden fairly among dischargers. Check whether the margin of safety is too high, including any allowance for future growth.

STEP 7: Develop Implementation and Monitoring Plan

State action:

Include in their plan: actions/management measures required to implement the allocations; time line for tracking actions; assurances that actions will occur; legal or regulatory controls under which implementation will occur; estimated time required to attain water quality; a monitoring/modeling plan designed to determine TMDL effectiveness; milestones that will be used to measure progress in achieving water quality standards; and the circumstances under which TMDLs will be revised.

Opportunities for DoD participation:

Use the plan to determine what the allowable pollutant loads would be for their installation and the actions required to reduce loading. The plan can help the installation develop a compliance plan.

Determine if the time allotted to comply with the discharge reductions is reasonable, and whether any monitoring required for TMDL implementation is appropriate.

STEP 8: Public Participation in Review of TMDL

State action:

Typically, give the public at least **30 days** to review and comment on a TMDL before it is submitted to EPA for approval.

Opportunities for DoD participation:

Review and comment on the TMDL during the public review process. (Note: It is important that DoD personnel provide their comments on the TMDL to the State prior to the deadline.)

Request a public meeting if water manager and legal counsel determine such a meeting is warranted.

STEP 9: TMDL Submittal to EPA

State action:

Submit each TMDL to EPA for approval. If EPA disapproves the State's TMDL, EPA must develop a TMDL, typically within 30 days, and publish it in the *Federal Register* for public comment. The public will be given at least 30 days to review the TMDL and provide comment.

DoD action:

Negotiate permit effluent limits and/or conditions.

STEP 10: Execute Implementation and Monitoring Plan

State action:

Execute their TMDL implementation and monitoring plan.

DoD action:

Execute a compliance plan to assist with reducing pollutant loads in order to meet TMDL requirements and monitor the impaired waterbody during TMDL implementation as appropriate.

DoD must:

Comply with new requirements.

Note: This TMDL process is repeated until the water quality is restored and the waterbody is removed from the 303(d) list.